

**UNITED STATES DISTRICT COURT
DISTRICT OF MINNESOTA**

John R. Wilson and
Wilson Wolf Manufacturing Corp.,

Civil No. 13-210 (DWF/TNL)

Plaintiffs,

v.

**MEMORANDUM
OPINION AND ORDER**

Corning, Inc.,

Defendant.

Britta S. Loftus, Esq., Devan V. Padmanabhan, Esq., Erin O. Dungan, Esq., Mariah L. Reynolds, Esq., Michelle E. Dawson, Esq., Paul J. Robbennolt, Esq., and Sri K. Sankaran, Esq., Padmanabhan & Dawson, P.L.L.C., counsel for Plaintiffs.

Bradley R. Love, Esq., Jeff M. Barron, Esq., and Paul Bryan Hunt, Esq., Barnes & Thornburg LLP; Ivan Poullaus, Esq., Kimball R. Anderson, Esq., Linda T. Coberly, Esq., Paula W. Hinton, Esq., and Robine Kirsty Morrison, Esq., Winston & Strawn; Kelsey McElveen, Esq. and Lora Mitchell Friedemann, Esq., Fredrickson & Byron, P.A., counsel for Defendant.

INTRODUCTION

This matter is before the Court on the issue of patent claim construction pursuant to *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996). The Court considers the claim construction issue below.

BACKGROUND

The facts and background of this case have been thoroughly recited in prior orders and will not be restated in full here. Relevant to this motion is Plaintiffs' allegation that John R. Wilson ("Wilson") or employees of Wilson Wolf Manufacturing Corp. ("Wilson

Wolf”) (together, “Plaintiffs”) should be named as inventors of U.S. Patent No. 7,745, 209 (the ’209 Patent) and U.S. Patent No. 8,273,572 (the ’572 Patent). In the Complaint, Plaintiffs seek to remove the named Corning, Inc. (“Defendant” or “Corning”) scientists (Dr. Allison Tanner and Greg Martin) as inventors of the Patents and to name Wilson as the sole inventor.¹ Corning previously moved for summary judgment on Plaintiffs’ sole inventorship claim with respect to the ’209 Patent and the ’572 Patents, arguing that the claims fail as a matter of law because the Patents encompass perfusion devices and Wilson admitted that he did not contribute to the concept of perfusion in the claimed inventions.² The Court denied the motion as to the ’209 Patent without prejudice, concluding that “a proper construction of the term ‘continuous flow’ would assist a determination of inventorship of the ’209 [Patent] and that fact issues remain as to the inventorship of the ’572 Patent.” (Doc. No. 461 at 18.) The Court further explained that it would reconsider Corning’s motion when the term “continuous flow” was properly construed.

The Court now addresses the construction of “continuous flow” as it is used in two dependent claims of the ’209 Patent.

¹ The ’209 Patent and the ’572 Patent share the same specification. For ease of reference, the Court cites to the ’209 Patent (Doc. No. 670-1).

² In an Expert Report dated November 13, 2015, John Wilson stated: “The Wilson Wolf disclosures at issue were directed to static devices and static cell culture. The Wilson Wolf disclosures do not teach ‘continuous flow’ if ‘continuous flow’ is construed to mean perfusion.” (Doc. No. 671 (Expert Report of John Wilson), Ex. 3 at 11 n.2.)

DISCUSSION

I. Claim Construction

A. General Principles of Claim Construction

Patent claim construction, i.e., the interpretation of the patent claims that define the scope of the patent, is a matter of law for the court. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 970-71 (Fed. Cir. 1995), *aff'd*, 517 U.S. 370 (1996). Proper claim construction requires an examination of the intrinsic evidence of record, including the claim language, the specification, and the prosecution history. *Bell Atl. Network Servs., Inc. v. Covad Commc'ns Grp., Inc.*, 262 F.3d 1258, 1267 (Fed. Cir. 2001); *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). The starting point for claim construction is a review of the words of the claims themselves. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (citation omitted); *see also Vitronics*, 90 F.3d at 1582 (“First, we look to the words of the claims themselves, both asserted and nonasserted, to define the scope of the patented invention.”). The words of a claim generally carry “the meaning that the term would have to a person of ordinary skill in the art at the time of the invention.” *Phillips*, 415 F.3d at 1313. Claims must also be read in view of the specification. *Id.* at 1315. The specification is always “highly relevant” to claim construction and “the single best guide to the meaning of a disputed term.” *Id.* (citing *Vitronics*, 90 F.3d at 1582.) “[T]he specification necessarily informs the proper construction of the claims.” *Id.* at 1316 (explaining that the claims must be construed so as to be consistent with the specification).

The specification may prescribe a special definition given to a claim term that differs from the meaning it would otherwise possess, or it may reveal a disavowal or disclaimer of claim scope by the inventor. *Id.* In such cases, the intention that is expressed by the inventor in the specification is dispositive. *Id.* The Court may not, however, import limitations from the specification into the claims. *Id.* at 1323. To avoid importing limitations from the specification into the claims, the Court considers that “the purposes of the specification are to teach and enable those of skill in the art to make and use the invention and to provide a best mode for doing so.” *Id.*

The Court “should also consider the patent’s prosecution history,” which “provides evidence of how the [United States Patent and Trademark Office (“USPTO”)] and the inventor understood the patent.” *Id.* at 1317 (internal quotations and citation omitted). The prosecution history “consists of the complete record of the proceedings before the [USPTO] and includes the prior art cited during the examination of the patent.” *Id.* (citation omitted). The prosecution history may “inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be.” *Id.* (citing *Vitronics*, 90 F.3d at 1582–83).

A court may, in its discretion, consider extrinsic evidence, though such evidence is less reliable than intrinsic evidence. *Id.* at 1317-18. In most situations, intrinsic evidence will resolve any ambiguity in a disputed term, and when it does so, the court may not rely on extrinsic evidence. *Vitronics*, 90 F.3d at 1583.

B. Disputed Term — “continuous flow”

The parties dispute the meaning of the term “continuous flow” as it appears in dependent claims 12 and 31 of the ’209 Patent:³

- 11. The apparatus of claim **2**, whereby said integral unit comprises a plurality of modules.
- 12. The apparatus of claim **11**, wherein said plurality of modules are interconnected in series or staggered to permit continuous flow.
...
- 30. The apparatus of claim **17**, wherein said integral unit comprises a plurality of modules.
- 31. The apparatus of claim **30**, wherein said plurality of modules are interconnected in series or staggered to permit continuous flow.

(’209 Patent at c. 13, ll:53-57; c. 14, ll:52-56) (underlining added.)

Plaintiffs contend that the phrase “continuous flow” is properly construed as not requiring perfusion and to mean that “the modules are connected such that: a) their cell growth chambers are in fluid communication so that medium can pass through them; and/or b) their tracheal spaces are in fluid communication so that gas can pass through them.” Corning, on the other hand, asserts that the term “continuous flow” is “a type of perfusion (a perfusion that is continuous).”⁴ The Court briefly summarizes the parties’ arguments below.

³ The Court includes the language of Claims 11 and 30 for context.

⁴ In addition, Corning asserts that if the Court construes “continuous flow” to mean a type of perfusion, it is entitled to summary judgment on Plaintiffs’ sole inventorship claims. (Doc. No. 668 at 14.)

In support of their definition, Plaintiffs argue that the claim language refers to a static device and nothing in the claim language states or suggests that “flow” requires perfusion or that anything is perfused through the device. For example, Plaintiffs point out that the terms “perfuse” and “perfusion” do not appear in the ’209 Patent claims. Plaintiffs further argue that the claims do not recite pumps, pressurized gas tanks, or other equipment that Plaintiffs assert are necessary for perfusion. In addition, Plaintiffs argue that, consistent with the ordinary meaning of “flow,” the language of the independent claims in the ’209 Patent demonstrates that “flow” does not require perfusion. Plaintiffs cite to independent claims 1 and 16, which recite “at least one tracheal space” and that “gasses . . . flow” into the tracheal space. Plaintiffs submit that it is undisputed that gasses “flow” into the tracheal space without perfusion, and because these claims encompass a device with only one tracheal space, the use of the term “flow” rather than “continuous flow” makes sense.

Plaintiffs also argue that the specification indicates that “continuous flow” is not synonymous with perfusion because the specification distinguishes between continuous flow and perfusion—with “flow” occurring in a static device. For example, Plaintiffs argue that the following language (including the use of “continuous flow”) in the specification makes clear that each of the multiple modules has a cell growth chamber and a tracheal chamber and that the cell growth chambers of connected modules are in fluid communication such that medium introduced in one chamber can continue into another chamber:

In another aspect, an integral unit of the cell culture apparatus comprises a plurality of modules, each having a cell growth chamber and a tracheal chamber. The plurality of modular gas permeable substrates are utilized to permit a plurality of cell chambers and tracheal chambers to be arranged to form one unitary apparatus of the present invention. The plurality of layers of gas permeable substrates are further capable of being interconnected or adjoined to provide a multiplicity of areas for cellular growth. The plurality of modules may be interconnected in series or staggered to permit continuous flow. For easy assembly and disassembly, individual units having snap-like features could be securely and easily adjoined.

(’209 Patent at c. 3, ll:53-64.) Plaintiffs maintain that this language indicates that multiple cell growth chambers can be filled with one continuous flow of medium without perfusion (as opposed to each chamber needing to be filled separately).⁵

Plaintiffs also point out that the examples of devices in the ’209 Patent disclose cell growth chambers that are in communication such that they can be filled by one continuous flow of medium, as well as examples of devices where cell growth chambers are not in communication with each other and, therefore, must be filled individually. Plaintiffs further submit that the specification distinguishes between continuous flow and perfusion by use of the word “or.” (*See id.* c. 9, ll:56-59 (“an embodiment of the present invention incorporates a staggered configuration . . . so as to allow continuous flow **or** perfusion through the vessel”) (emphasis added); c.4, ll.8-9 (“continuously flow **or**

⁵ Similarly, Plaintiffs maintain that connected tracheal spaces can be filled with one continuous flow of gas. (*See* ’209 Patent, c. 11, ll:48-53.)

perfuse through the apparatus”) (emphasis added).⁶ In short, Plaintiffs submit that the ’209 Patent specification discusses and distinguishes between perfusion and continuous flow and between perfusion systems and static devices.

Corning submits that “continuous flow” in the ’209 Patent means “a type of perfusion.” Corning argues that the ordinary and customary meaning of “continuous flow” is a type of perfusion (a perfusion that is continuous), and that the Patents use that ordinary meaning. In addition, Corning argues that, regardless of the meaning of “continuous flow” in the two dependent claims at issue, the concept of perfusion is indisputably within the scope of the broader, independent claims of the Patents.⁷

First, Corning argues that the Summary of the Invention confirms this plain-language construction by using the term perfuse and referencing illustrative embodiments that include static cell culture devices, perfusion devices, and devices that can be used either as a static or perfusion device:

While many embodiments of the present invention are suitable for static cultures, another embodiment of the present invention staggers the gas permeable substrates within the flask to permit continuous flow through the cell culture chamber. The staggered layers allow media **to continuously flow or perfuse** through the apparatus.

⁶ Plaintiffs argue that the use of the disjunctive “or” suggests that “continuous flow” and “perfusion” are alternatives and not synonyms. *See IBSA Institut Biochimique, S.A. v. Teva Pharms. USA, Inc.*, 966 F.3d 1374, 1379 (Fed. Cir. 2020); *SkinMedica Inc. v. Histogen, Inc.*, 727 F.3d 1187, 1199 (Fed. Cir. 2013).

⁷ Thus, Corning maintains that it does not matter whether perfusion is defined to include or require pumping because whatever perfusion includes, it is covered by the claims.

(’209 Patent, c. 4, ll: 4-9 (emphasis added).) Corning points to Figure 5 as a perfusion embodiment:

FIGS. 5 and 5A illustrate another embodiment of the present invention. As illustrated in partial internal and external cross-sectional views, respectively, a multilayered culture vessel **501** of the present invention is a perfusion system **500**.

(’209 Patent at c. 9, ll:7-10.) The Patent’s Detailed Description explains that this embodiment may be configured “to incorporate[] a staggered configuration of gas permeable substrates . . . so as to allow continuous flow or perfusion through the vessel **501**.” (*Id.* c. 9, ll:56-59.) Corning argues that the claims of the ’209 (and ’572) Patents include the perfusion embodiments and points to claims 12, 15, 17, 30, and 31 of the ’209 Patent as depending on claim 2 and pointing to specific elements of the perfusion embodiment in FIG. 5, namely the “continuous flow” of medium, the devices’ stand-offs, the tracheal space, and the fact that a number of modules can be combined:⁸

12. The apparatus of claim **11**, wherein said plurality of modules are interconnected in series or staggered to permit continuous flow.
15. The apparatus of claim **2**, further comprising stand-offs rising from an exterior surface of a top plate of the apparatus, descending from an exterior surface of a bottom tray of the apparatus, or both.

⁸ Specifically, the Patents describe aspects of the perfusion embodiment in FIG. 5: the “raised rim **580** serving as a standoff **580**” to allow the modules to be “stacked,” (*id.* at c. 9, ll:33-37); the “parallel configuration permitting an airway or tracheal space **540** to separate each cellular growth layer **550**,” (*id.* at c. 9, ll:12-14); and the “[v]arious arrangements of the layers **550** and stacked substrates **530** . . . permit[ing] . . . static cell culture or cell culture in a perfusion system as discussed.” (*Id.* at c.9, ll:59-62.)

17. The apparatus of claim **15**, wherein said at least one tracheal space and said plurality of cell growth chambers are combined into at least one integral unit.
30. The apparatus of claim **17**, wherein said integral unit comprises a plurality of modules.
31. The apparatus of claim **30**, wherein said plurality of modules are interconnected in series or staggered to permit continuous flow.

(’209 Patent at c. 13, ll:64-67; c. 14, ll:20-22; c. 14, ll:52-55 (underlining added).)

Corning further argues that the specification distinguishes between “continuous flow” (perfusion) and static culture devices that do not, by definition, incorporate continuous flow. Corning points to the Summary of the Invention (above) and the Detailed Description, which Corning asserts uses the terms “continuous flow” and perfusion interchangeably. (*See, e.g., id.* at c. 9, ll:58-59 (describing an embodiment that “allow[s] continuous flow or perfusion through the vessel”).) Corning submits that the Patents distinguish between static cell culture (where the device is filled with liquid medium that does not flow through the device, but rather remains in the device and is later removed) and devices that involve perfusion (where the liquid medium flows through the device continuously).

The Court concludes that the “continuous flow” limitation in dependent claims 12 and 31 refers to a type of perfusion where liquid medium is continuously flowing through the cell culture vessel. The claim language and specification provide that the Patents encompass perfusion devices. Claim 1 of the ’209 Patent recites a “cell growth

apparatus” comprising various elements.⁹ Dependent claims 12 and 31 of the ’209 Patent both refer to an apparatus “wherein said plurality of modules are interconnected in series or staggered to permit continuous flow.” The claim language itself – “staggered to permit continuous flow” refers to an embodiment of the invention at FIG. 5. This embodiment describes a “staggered configuration” of the apparatus, so as to allow “continuous flow or perfusion through the vessel.” (’209 Patent, c. 9 at ll:7-10; c. 9, ll:56-59.) The embodiment is described as “a perfusion system **500**.” (*Id.*) Thus, when the claims describe modules “staggered to permit continuous flow,” the plain and ordinary meaning of the phrase is that it refers to the perfusion system in FIG. 5. The specification goes on to equate “continuous flow” with “a perfusion that is continuous.” (*See, e.g.*, ’209 Patent at c. 4, ll:43-47 (“When gas permeable substrates are stacked, the entry and exit portals may be positioned in a parallel or staggered assembly so as to permit flow or perfusion through cell culture chambers within the body of the apparatus.”)); *id.* at c. 10, ll:34-38 (describing Figure 6: “Additionally, an open end **633** of the frame **632** is a feature to permit fluid flow when multiple modular units **600** are stacked and adhered together into a unitary body so as to be utilized in perfusion devices.”). Here, the claim language and the specification demonstrate that the claims encompass perfusion and that the term “continuous flow” refers to a type of perfusion.

⁹ Similarly, claim 1 of the ’572 Patent recites “[a] method of culturing cells in a cell growth apparatus, the method comprising: . . .”

The Court has considered Plaintiffs' arguments for why the claims exclude perfusion and respectfully finds them unpersuasive. Briefly, the Court notes that there is no clear disclaimer of the perfusion system embodiment in the specification. Therefore, the Court will not interpret terms so as to exclude that embodiment. *See Oatley Co. v. IPS Corp.*, 514 F.3d 1271, 1276 (Fed. Cir. 2008). Second, Plaintiffs argue that the specification distinguishes between continuous flow and perfusion and that the use of the word "or"—continuous flow or perfusion—suggests that they are alternative systems, not synonymous systems. The Court disagrees. Instead, in reading the language of the claim, the Court understands the use of the word "or" to connect the terms "continuous flow" and "perfusion" so as to indicate equivalence.

For the reasons stated above, the Court adopts Defendant's proposed construction and construes the term "continuous flow" as "a type of perfusion (a perfusion that is continuous)."

II. Sole-Inventorship Claims

In Count I of the Complaint, Plaintiffs assert a claim for declaratory judgment of invalidity, or correction of inventorship as to the '209 Patent. Specifically, Plaintiffs seek to name John Wilson and/or other Wilson Wolf staff as the sole inventor(s) or, in the alternative, invalidate the Patent on the ground that the named inventors did not themselves invent the claimed subject matter. In Count II, Plaintiffs assert that Wilson or Wilson Wolf staff should be named as sole or joint inventors with respect to the '572 Patent.

Corning argues that the Court can dispose of Plaintiffs' sole-inventorship claims as a matter of law as to both the '209 and '572 Patents because Wilson has admitted that his disclosures were directed to static cell culture devices and did not teach the perfusion devices claimed by these Patents. In addition, Corning submits that regardless of the construction of "continuous flow," the Court can grant summary judgment in its favor on Plaintiffs' claim of sole inventorship of the '572 Patent and the '209 Patent. Corning argues that the claims of the '572 Patent and the independent claims of the '209 Patent do not include the term "continuous flow," and therefore indisputably cover perfusion devices in addition to static devices. Corning argues that in order to maintain any sole inventorship (as opposed to a joint inventorship) claim related to the Patents, Plaintiffs must show that Wilson conceived of every feature encompassed by the claims. Because Wilson has acknowledged that he did not invent a perfusion device, Corning submits that there are no material issues of fact remaining on Wilson's sole-inventorship claims and asks the Court to enter judgment in favor of Corning on those claims.

Plaintiffs argue that Corning's arguments on summary judgment are premature and wrong. Plaintiffs stress that the only issue before the Court is claim construction and that any impact of the construction will have to be briefed after construction. In addition, even as to the '209 Patent, in light of the Court's above determination that the claims encompass a perfusion device, Plaintiffs argue that this is not determinative of the inventorship claim because the contribution of optional features or obvious variations by Corning staff would not make them inventors. For example, Plaintiffs submit that Wilson noted in his expert report that depending on claim construction, the added

limitations of claims 12 and 31 may be obvious. This, Plaintiffs argue, highlights that fact issue remain for determination even after claim construction.

The Court agrees that the issue of summary judgment on the inventorship claim is premature. The Court declines to enter judgment on Counts I and II.

ORDER

Based upon the foregoing, and the files, records, and proceedings herein, **IT IS HEREBY ORDERED** that:

1. The term “continuous flow” is construed as set forth in this Memorandum Opinion and Order.

2. Defendant’s renewed motion for summary judgment on inventorship is **DENIED**.

Dated: September 16, 2022

s/Donovan W. Frank
DONOVAN W. FRANK
United States District Judge